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ABSTRACT

Funding for compensatory education programs for grades K-6 in Michigan has, since 1971, been based on the results of statewide achievement tests rather than on socioeconomic factors. The Michigan Educational Assessment Program (MEAP) achievement tests are administered to public school students in fourth and seventh grades. To be eligible for state support, a district must have at least 15 percent of its total K-6 enrollment and a minimum of 30 students classified as educationally deficient in basic cognitive skills. Districts receive a fixed number of dollars per eligible pupil, and funds are allocated to districts based on need. Simulations, based on MEAP results and on enrollment data, are used to keep determining: (1) an appropriate definition of low achievers; (2) school districts most in need of compensatory education funds; (3) the per pupil funding level; and (4) the number of districts to receive funding. After seven years of MEAP, some conclusions were: that all community types are represented, although large metropolitan districts tend to receive the greatest amount of funds; and that funding based on achievement scores, although similar to funding patterns based on economic conditions, tends to be spread more widely throughout a district. (RH)

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COMPENSATORY EDUCATION PROGRAM

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USING ACHIEVEMENT TESTS TO FUND A STATE-WIDE
COMPENSATORY EDUCATION PROGRAM

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In the last few years the number of states requiring state-wide testing of student achievement or competency has increased rapidly. The basis for these programs is usually that they will provide information on which state policy (e.g. allocating funds, setting standards) can be based.

State financed compensatory education programs aimed at improving the educational achievement of disadvantaged students have also increased in number. These programs are based on the assumed needs of students defined as disadvantaged.

In Michigan educational need has been defined in terms of student achievement. The results of the statewide educational assessment tests have been used since 1971 as the basis for allocating compensatory education funds to those districts having the greatest concentration of needy students.

This paper has the following primary objectives:

1. To present the method used in Michigan for allocation of state compensatory education funds. Michigan's state compensatory education program, known as Chapter 3 (now, Article 3), provides financial assistance to school districts having a large proportion of educationally disadvantaged students. The purpose of this assistance is to enable local school districts to provide additional services to these students with the aim of improving their achievement in the basic cognitive skills.
2. To describe Michigan's use of state-wide assessment test results to identify numbers of low-achieving students in each school district. Scores on assessment tests in reading and mathematics administered to all Michigan students in grades 4 and 7 are used for estimating the number of low-achieving students in grades K-6 in each district. The proportion of the K-6 enrollment estimated to be low-achieving for each district is used to determine those districts in the state with the greatest concentration of low-achieving students.
3. To describe Michigan's use of simulations as an aid in deciding the level of achievement of "low-achieving" students and per/pupil level of funding. Simulations can be run with varying definitions of what constitutes a low-achieving student, and levels

of funding per student. From these it is possible to determine for a given definition of low-achieving students, a given level of funding per student and a given amount of total funds which districts would receive funding and the number of eligible students and total funding level for each.

BACKGROUND

In 1971 the decision was made to base the funding of Michigan's state compensatory education program on educational achievement rather than socio-economic factors as is done in Federal compensatory education programs and as had been done previously in Michigan. Michigan has had State funded compensatory education programs since 1965. "Prior to 1971, a local school district's eligibility to participate in Michigan's Compensatory Education Program was established on the basis of socio-economic deprivation of the student body."¹ Socio-economic measures used as indicators of educational deprivation, included percent of children on ADC, percent of underprivileged children and percent of children from broken homes. A total of six such proxy measures were used in determination of district eligibility.²

For funding to be based on educational need, some measure of achievement administered to students in all school districts in the state was required. The Michigan Educational Assessment Program, initiated by the State Board of Education in 1969, provided the means for directly measuring achievement.

In addition, it was necessary to establish criteria defining those students who would be considered "low-achievers", eligible for compensatory education funding. Using the test results from the state-wide assessment program it was possible to determine the proportion of tested students in each district achieving below any given criterion. Using a specified criterion it was possible to estimate the number of low-achieving students in any district. Thus, a direct measure of educational need based on student achievement levels was available.

The program was to be based on a fixed amount of total funds to be distributed to those eligible districts with the greatest need. To be eligible it would be required that a district have at least 15% of its total K-6 enrollment and a minimum of 30 of its pupils in grades K-6 found to be in need of substantial improvement in their basic cognitive skills. "Greatest need" would be determined by the percentage of the total K-6 enrollment determined to need compensatory education.

Each district would be eligible to receive a fixed number of dollars per eligible pupil and funds would be allocated to districts in order of need until the entire appropriation was used.

Before this approach to funding could be implemented the following questions had to be answered:

1. What definition of low-achieving students would be used?

On a norm-referenced test, for instance, low-achieving students might be defined as students achieving below the 10th, 20th or the 30th percentile. On an objective-referenced test they might be those attaining less than 20, 30, 40 or 50 percent of the objectives. The number of low-achieving students in a district would depend on the definition used. In turn, the level of funding for each district and the number of districts funded with a given allocation would be dependant on the number of students funded in each district.

2. Which school districts were in greatest need of funds for compensatory education?

To a lesser extent, the definition of low-achieving students would affect the determination of which districts had the greatest need for compensatory education funds. Thus District A might have 40 percent of its students achieving less than 50 percent of the objectives on an objective-referenced test. However, only 10 percent of the students in this district might be achieving less than 25 percent of them. District B, on the other hand, might have 15 percent of its students achieving less than 25 percent of the objectives but a total of only 20 percent of them achieving less than 50 percent. A criterion close to 50 percent of the objectives would make District A appear more needy. One close to 25 percent would show District B as having greater need. Once the criterion for low-achieving students was agreed on formulas for estimating the total number of low-achievers from the sample tested and their proportion in the total enrollment were needed. The sample, tested yearly, consisted of all students in grades 4 and 7 in Michigan public schools. The actual formulas used to extrapolate these results to the entire K-6 enrollment would affect the ranking of districts in

terms of need, particularly when the differences between districts were small.

3. What would the per pupil funding level be?

In other words how many dollars would a school district get for each eligible student? If the level were set too low more districts could be funded but none would receive enough to institute programs that would make a measurable difference in the achievement of their needy students. If the level were set too high very few districts would receive funding and these would receive more than they could effectively use to increase the achievement of those students identified as low-achievers. It was considered desirable to provide enough funds per pupil to obtain maximum results for the most students.

4. How many districts would receive these funds?

The number of districts that could be funded with a given appropriation was dependant on the definition of low-achieving students and the level of funding per student. Certain other requirements were considered essential to assure that the districts funded had a large enough number and proportion of needy students to justify a special program. If districts were required to have at least a minimum number of students needing compensatory education, to justify providing a special program, the eligibility of small districts would be affected. Districts could also be required to have a minimum percentage of low-achieving students to be considered as having special needs. The percentage required would affect the number of districts eligible for funds only if the number with a higher percentage was less than the number that could be funded with the appropriation.

USE OF SIMULATIONS

Simulations, which could be run based on differing answers to these questions provided information needed by those responsible for making the decisions. To study the effects of different definitions of low-achieving students and levels of funding, simulations were run varying the input values for these variables. The following formulas were used to run the simulations:

1. The number of eligible students in a district equaled the ratio of low-achievers to the number tested times the total enrollment.

$$(D_4 / N_4) (E_{K-4}) + (D_7 / N_7) (E_{5-6}) = N$$

where

- D_4 = the number of low-achieving students in grade four,
- N_4 = the number of grade four students tested,
- E_{K-4} = the enrollment in grades kindergarten through four,
- D_7 = the number of low-achieving students in grade seven,
- N_7 = the number of grade seven students tested,
- E_{5-6} = the enrollment in grades five and six, and
- N = the number of eligible students.

When using norm-referenced tests D_4 and D_7 would be the number of students achieving below a specified percentile rank. For objective-referenced tests the numbers achieving fewer than a specified percentage of the objectives in reading and in mathematics would be averaged. The proportion of low-achievers to the total number tested in grade four was used to estimate the total number of low-achievers in grades kindergarten through four. That same proportion in grade seven was used to estimate the number of low-achievers in grades five and six. Both of these added together gave the total number of eligibles for a district. A minimum of 30 eligible students was required for a district to be considered eligible for the program.

2. The funding level for each district equaled the number of dollars per eligible student times the number of eligible students for the district. $\$N = L$.

Where

- $\$$ = dollars per eligible student,
- N = the number of eligible students, and
- L = the funding level for the district.

Funding would be based on an allocation of a fixed number of dollars per eligible student. The level of funding for a district was thus directly dependant on the number of eligible students.

3. Each district's relative amount of need was determined by the concentration of low-achieving students or the ratio of eligible students to the total K-6 enrollment expressed as a percent. Districts were required to have a minimum of 30 eligible students to be included in the program. $(N/E_{K-6}) \times 100 = \%I$

$\%I$ was then considered as the percent of impaction or the measure of relative need.

4. To determine which districts would be funded by a given appropriation, eligible districts (those having 30 or more eligible students) were ranked in order of relative amount of need. The cumulative funding level was then calculated. From this the number and identity of districts that would be funded by any given appropriation could readily be determined.

The simulations listed each school district with the numbers of low-achievers, students tested, enrollment and eligible students as well as the concentration (percent of K-6 enrollment eligible) and the funding level. The districts were listed in order of percent of impactation (%I) and also by district code.

Figure 1 is an example showing how data might appear on a simulation listing. Each district is identified by a state-assigned numerical code as well as by name. The headings are defined as follows:

- DM4 - the total number of grade 4 students achieving the specified percentage of objectives or less on the MEAP Grade 4 Mathematics Tests. When data from more than one year is used the sum of the numbers for each year is listed.
- D4R - the same as D4M but on the MEAP Grade 4 Reading Tests.
- N4 - the total number of Grade 4 students tested in the district with the MEAP tests for the year(s) specified.
- E1 - the total district enrollment in grades K-4 for the year(s) specified. When enrollment data for more than one year was used the sum of the enrollments for the years specified was listed.
- D7M - the same as D4M but for grade 7 students on the MEAP Grade 7 Mathematics Tests.
- D7R - the same as D7M but on the MEAP Grade 7 Reading Tests.
- N7 - the number of grade 7 students tested in the district with the MEAP tests for the year(s) specified.
- E2 - the same as E1 but for grades 5-6.
- N - the number of eligible students for the district.
- CN - the cumulative number of eligible students for this district and those preceding it.
- X - the percentage of low-achieving grade 4 students.
- Y - the percentage of low-achieving grade 7 students.
- ZI - the percentage of the total K-6 enrollment eligible for compensatory education.
- \$ - the level of funding for the district.
- C\$ - the cumulative level of funding for this district and those

FIGURE 1

MEAP

ONE YEAR SIMULATION FOR YEAR 1976

RUN DATE 12/18/77 PAGE 99

CUTOFF POINT 40% OF THE OBJECTIVES OR LESS LEVEL 4 OBJECTIVES - 19 READING 30 MATH LEVEL 7 OBJECTIVES - 20 READING 40 MATH

CODE	DISTRICT NAME	D4M	D4R	N4	E1	D7M	D7R	N7	E2	N	CN	X	Y	Z1	\$	C\$
00170	SCHOOL DISTRICT HJ	296	523	760	3800	330	486	680	1500	1476	1476	54.0	60.0	55.70	295200	295200
00020	SCHOOL DISTRICT AJ	500	1113	1680	9300	596	884	1480	3200	3032	4508	48.0	50.0	48.51	606400	901600
00100	SCHOOL DISTRICT EE	1300	3340	5800	21700	2030	2840	5660	11900	6900	11408	40.0	43.0	41.07	1380000	2281600
00080	SCHOOL DISTRICT QQ	194	470	830	3200	225	346	680	1200	892	12300	40.0	42.0	40.55	178400	2460000
00130	SCHOOL DISTRICT BD	40	90	180	1200	62	98	160	500	342	12642	36.1	50.0	40.24	68400	2528400
00100	SCHOOL DISTRICT RQ	330	780	1480	7600	286	862	1470	2700	1952	14594	37.5	39.0	37.90	390400	2918800
00120	SCHOOL DISTRICT HC	45	140	250	1200	104	180	370	700	357	14951	37.0	38.5	37.58	71400	2990200
00330	SCHOOL DISTRICT TT	112	323	670	3700	259	415	680	1400	947	15898	32.5	50.0	37.13	189400	3179600
00250	SCHOOL DISTRICT WX	169	400	790	4000	182	330	640	1300	980	16878	36.0	40.0	36.98	196000	3199200
00030	SCHOOL DISTRICT AH	16	27	50	200	8	14	50	100	54	16932	43.0	22.0	36.00	10800	3210000

Certain parameters, such as test scores, level of per pupil funding, year(s) of test and enrollment data, could be varied for each simulation. The percentile rank or number of objectives achieved used to define low-achieving students could be varied in successive simulations and the effects of varying them on the number of eligibles and relative district need noted. The level of funding per eligible student could be varied and its effect on the level of funding for each district and on the number of districts that would be funded by a given appropriation considered. Test results and enrollment data from different years or combinations of years could be compared. Thus year to year differences and the effects of averaging two or more years' data could be noted. It would also be possible to study the effects if funding were based on either the reading or mathematics test results alone as well as the averaged results. If desired the results from either grade 4 or grade 7 testing could be used alone to estimate the number of low-achievers. Or using both, the grades for which each was used could be varied and the effects noted.

By running simulations using different specifications, it was possible to compare the group of districts which would be funded and the level of funding for each resulting from each set of specifications. In running the simulations values for the following variables had to be specified:

1. The year or years from which test and enrollment data were to be used. Test and enrollment data need not be from the same year(s). Test and/or enrollment data from a single year could be used or data from two or more years could be averaged.
2. The maximum level of achievement of low-achieving students. An operational definition of low-achieving students had to be specified in terms of the maximum test score achieved by students so classified, e.g. at or below the 15th percentile, attaining fewer than 9 objectives on the grade 4 reading test, attaining fewer than 17 objectives on the grade 7 mathematics test.
3. The grades for which enrollment data was to be used in estimating the number of eligibles from each level tested. Thus the grade 4 test results were used to estimate the number of low-achievers in grades K thru 4.
4. The level of funding per eligible pupil in dollars.

- 5 The variable to be used in determining the order in which the districts would be listed. When ordered by decreasing %I, the listing made it readily apparent which districts showed the greatest relative need and how many would be funded by a given appropriation. When listed by district code the cumulative data were useless but individual district data for particular districts could readily be found.

DATA SOURCE

The simulations used were based on results of the Michigan Educational Assessment Program (MEAP) tests administered to all Michigan public school students in grades 4 and 7 and on enrollment data obtained in the fourth Friday count of students enrolled in all school districts in the state. The MEAP had been initiated in 1969 by the State Board of Education. The legislature in providing authority for the State Assessment Program directed the State Board to develop a program to remediate the basic skills deficiencies revealed in the Assessment results. The objectives tested by the MEAP closely matched the objectives of the Michigan Compensatory Education Program, i.e. reading and mathematics skills.³

From 1969 - 1972 MEAP used a norm-referenced test prepared for the State Department of Education by ETS for this purpose. Simulations based on results obtained during these years used percentile scores on composite achievement and on word relationships.

In 1973 MEAP changed to the use of objective-referenced tests in both reading and mathematics. Starting with the 1973-74 school year, the simulations were run using the percent of reading and mathematics objectives attained as the indicator of low-achievement. The number of students attaining less than a specified percentage of the reading and the mathematics objectives were reported separately and then averaged. Test data for a given school year were available in December of that year. When the same tests had been used in previous years those test data were also available.

Enrollment data are collected in Michigan on the fourth Friday after the start of each school year. Building level counts were used to obtain the K-4 and 5-6 enrollments required for each district in the simulations. Enrollment data for a given school year became available in April of that year. Data for previous years were also available.

RESULTS AND CONCLUSIONS

During the 1970-71 school year, separate simulations were run using the 1969-70 and 1970-71 assessment data. Various percentile scores were used as the criterion for low-achievement. These were the 8th, 10th, 15th and 20th percentiles on the Composite Achievement Score and on the Word Relationship Score. The information from these simulations was made available to the state legislators to assist them in the writing of legislation to fund the state compensatory education program (Chapter 3 of the State School Aid Act). Using this information the following decisions were made:

1. Low-achieving students were defined as those with a composite achievement score at or below the 15th percentile.
2. Districts were to be funded at \$200 per eligible pupil.
3. The total appropriation for the state compensatory education program would be \$22,500,000 per year for the next three years, 1971-1974.

These decisions were embodied in Section 3 (later changed to Chapter 3, now Article 3) of the State School Aid Act of 1971. Using the above definitions the money appropriated was allocated to eligible school districts in the state. To be eligible a district was required to have a minimum of 30 students and 15 percent of its enrollment eligible for funding. Districts were allocated \$200 per eligible pupil. Funds were allocated beginning with the district having the highest concentration of students achieving at the 15th percentile or below on the assessment tests and continuing until the funds were exhausted.

As a result 67 school districts in Michigan were funded for Chapter 3 programs starting with the 1971-72 school year. The legislation specified that the same districts were to be funded for the same number of students for a three-year period. Later this funding was extended for a fourth year. Thus, the 67 districts were eligible for the same yearly allocation for state-funded compensatory education from 1971-75⁴.

By 1974-75 it was apparent that some provision for flexibility in the funding was needed. Many districts not originally funded objected to being "locked-out" of the program. Most districts had had changes in the size of their enrollments. Some had had increasing numbers of educationally-deprived children moving into the district. Simulations that had been run in the intervening years indicated new districts had high concentrations of low-achieving students.

Also, in 1973-74 MEAP had made the change from norm-referenced to objective-referenced tests with separate reading and mathematics objectives. It became important to establish a criterion for low-achieving students in terms of the percent of reading and mathematics objectives attained on the MEAP tests. Since the results were separate, simulations run after fall 1973 averaged the numbers of low-achievers in reading and mathematics.

The 1974-75 simulations were run varying the percent of objectives attained by low-achieving students and the per pupil funding level. Simulations based on students attaining 20, 25, 30, 35, 40, 45, 50 and 55 percent or less of the objectives were run. Per pupil funding levels used were \$200, \$225 and \$250. Information from these simulations was assembled into reports to assist the state legislators in preparing new legislation for the 1975-76 school year. These reports enabled them to compare the sets of districts that would be funded and the level of funding for each under different specifications.

Using this information legislation was written and passed for the funding of Chapter 3 programs for the 1975-76 school year. The total appropriation and per pupil funding level were maintained at \$22,500,000 and \$200 as in previous years. Districts were to be funded for one year, only. Funds were allocated in order of the concentration of students achieving 40 percent or less of the objectives in reading and mathematics with the following exceptions.

1. Districts that had been in the program from 1971-75 were guaranteed, under a grandfather clause, 50 percent of their previous funding even if they would not otherwise have been eligible for funding in 1975-76.
2. Districts that had been in the program from 1971-75 and continued to be eligible for 1975-76 funding were limited to 110 percent of their original allocation.

A total of 97 school districts were funded under Chapter 3 for 1975-76. These included 30 districts that were new to the program and 21 districts funded under the grandfather clause.

In 1976 and 1977 districts were again funded for only one year. New simulations were run each year to select the districts that would receive funding.

Simulations were run for the 1976-77 school year using 20, 25, 30, 35 and 40 percent of the reading and mathematics objectives as the maximum

attained by low-achieving students. The per pupil funding was kept at \$200. In addition to simulations using just a single year's data, as had been used in the past, simulations averaging assessment data for two and three years were also run. Runs were made using the current year's (1976) enrollment data, as well as that for the previous year.

The legislation that was drafted and passed that year based funding on the average of two-years of assessment data and the current year's enrollment figures. The criterion for low-achieving students, attainment of 40 percent or less of the objectives in reading and mathematics, was retained. That year 88 districts were funded, 72 of which had been in the program previously. No provision was made for grandfathering districts in the program the previous year but not eligible for 1976-77.

The simulations run in 1977 again used 40 percent or less of the objectives attained as the criterion for low-achievers and the average of two-years of assessment data. Simulations were run using \$200, \$225 and \$250 per pupil as the funding level and using both one and two-year's enrollment data. The legislation that passed for 1977-78 used the 1976-77 enrollment data with 1975-76 and 1976-77 assessment data averaged. Low-achieving students continued to be defined as those attaining 40 percent or less of the objectives. However, for the first time since 1971 the per pupil level of funding for eligible districts was raised. For 1977-78 the level of per pupil funding was set at \$250. The practice of grandfathering districts was reinstituted. Grandfathered districts were allocated funds equal to half their funding for the previous year. This meant they were funded for half as many students as in 1976-77 at the rate of \$200 per student.

After seven years of funding Michigan's compensatory education program on the basis of educational attainment, certain conclusions can be drawn. They are:

1. It is possible to identify districts with a high concentration of educationally disadvantaged students through the use of state-wide assessment tests and to have this information available on a timely basis. Simulations that included MEAP results and enrollment data for the 1976-77 school year were available in April 1977 for use in planning for 1977-78.
2. While big city districts (enrollment over 20,000) tend to receive the greatest amount of money, districts of all sizes except the very smallest (enrollment under 180) are included in the program.

Table 1 shows the distribution of Chapter 3 districts by size as compared with other districts in the state.

3. While the highest concentration of districts is in the large metropolitan areas of the state, small cities, towns and rural areas are all represented. Figure 2 shows the percent of Chapter 3 Districts by type of setting. Metropolitan core cities are overrepresented in Chapter 3 while towns (pop. 2,500 to 9,999 are underrepresented. The remaining community types are represented in the Chapter 3 program in nearly the same proportion as their representation in the state as a whole.
4. The number of districts funded has increased while the number of eligible students in each district has tended to decrease. Though the total number of students funded has remained close to 112,500 throughout the seven-year period the number of eligible districts (not including those grandfathered) has steadily risen. The number was 67 from 1971-75, 76 in 1975-76, 88 in 1976-77 and 104 in 1977-78. Thirty-nine districts were fully funded in all seven years. They had a total of 106,471 eligible students from 1971-75, 100,936 in 1975-76, 98,573 in 1976-77 and 91,903 in 1977-78. Figures 3 and 4 show these changes.
5. The funding patterns based on achievement scores are similar to funding patterns based on economic conditions. However, the disbursement of those funds within a district is quite different. Funds allocated on the basis of achievement tend to be spread more widely throughout a district reaching low achievers in all school buildings. Funding patterns based on economic conditions, on the other hand, are usually allocated to target buildings located in areas having a large concentration of low SES families.

The following items represent a number of concerns with this type of allocating system:

1. While flexibility is desirable to keep pace with changes in the school population, stability in terms of funding overtime is also needed for the development of programs. In recent years most school districts have experienced declining enrollments. Population shifts have resulted in increasing numbers of educationally-deprived students in some districts. For other districts the additional funds received under Chapter 3 have provided the "shot in the arm" needed to implement

TABLE 1

MICHIGAN DISTRICTS IN CHAPTER 3 PROGRAM (1975-76) BY DISTRICT SIZE

Size of School Districts*	Number of Michigan Districts	Number of Chapter 3 Districts	Percent with Chapter 3 Programs.
50,000 and over	1	1	100
20,000 to 49,999	9	5	56
10,000 to 19,999	22	4	18
5,000 to 9,999	63	12	19
4,500 to 4,999	12	0	0
4,000 to 4,499	28	5	18
3,500 to 3,999	20	5	25
3,000 to 3,400	29	5	17
2,500 to 2,999	36	3	8
2,000 to 2,499	64	7	11
1,500 to 1,999	67	13	19
1,000 to 1,499	65	12	18
500 to 999	78	19	24
Below 500	93	6	6
TOTAL	587	97	17

*BASED ON STATE AID MEMBERSHIP⁵

PERCENT OF DISTRICTS BY MAJOR COMMUNITY TYPE

*As classified for the Michigan Department of Education,
Local District and School Report⁶

FIGURE 3

NUMBER OF SCHOOL DISTRICTS REGULARLY FUNDED
FOR CHAPTER 3, 1971-78

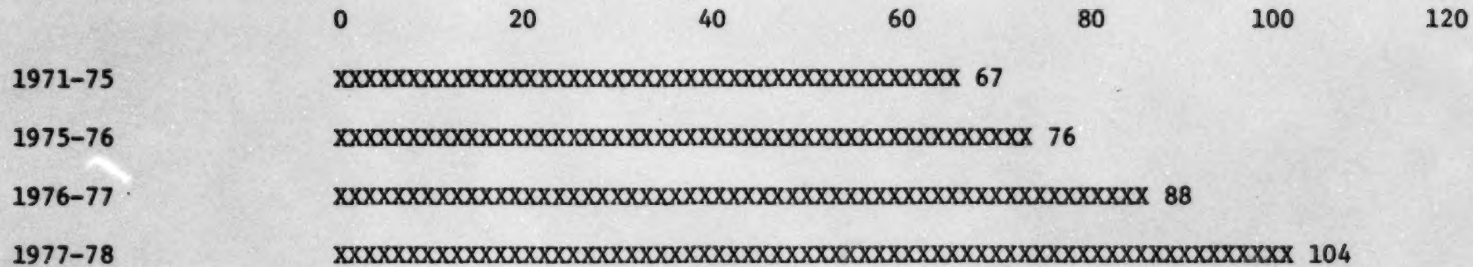
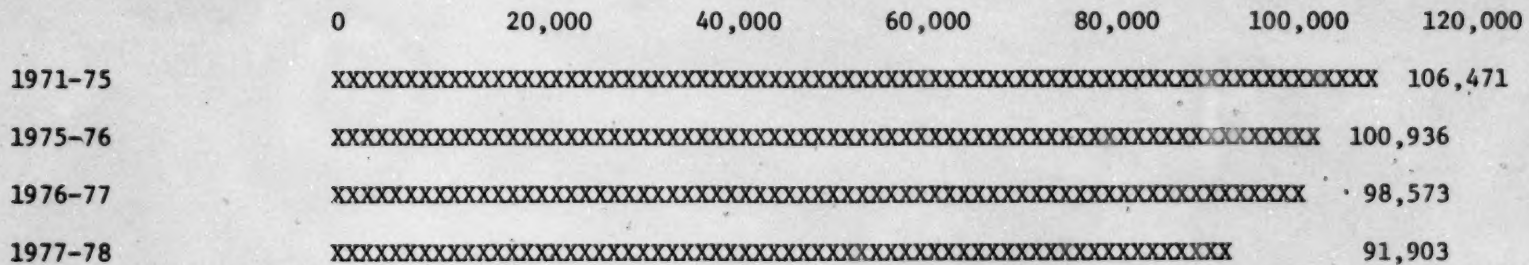


FIGURE 4

NUMBER OF STUDENTS ELIGIBLE FOR CHAPTER 3

IN 39 SCHOOL DISTRICTS REGULARLY FUNDED EVERY YEAR 1971-78



programs that have raised the level of achievement to the point where they are no longer among the most needy in the state. It is important, however, to separate long-term trends from year-to-year fluctuations. Particularly in the smaller districts in the state, scores fluctuate from year to year. Districts planning to implement new programs need assurance that funds will be available for a long enough period of time that adequate personnel can be hired and results of the program seen. Those districts which were funded for the first time in the program with no assurance of more than one year's funding were often unwilling to make the commitment of funds required to hire additional staff.⁷

2. Yearly funding makes it difficult for school districts to plan ahead. School districts frequently have to make decisions related to hiring personnel, renewing contracts and ordering materials well in advance, if they are to be ready at the start of the school year. Decisions related to requesting additional millage, which may be required to continue a program when state funding stops, often must be made as much as a year in advance. Teachers with specialized training in remedial reading and mathematics are frequently unwilling to take positions where they are likely to be assigned to regular classroom teaching because state funds were not appropriated. Districts that have to lay off staff are still obligated for unemployment compensation.
3. Districts that are successful in raising the achievement levels of their students are rewarded by losing money. A program that succeeds in raising the achievement level of students in a district makes the district less needy. It may then become ineligible for further funding in which case the program will have to be dropped or another source of funding found. This is particularly important for districts whose level of need is close to the point at which funds are exhausted. A relatively small gain in achievement for these districts can make the difference between full funding and no funding.

Some of these problems may be helped by refinements in the program. Averaging data from two or more years helps to provide more stability. Districts are no longer affected to as great an extent by a single good or bad year. Thus trends of decline or improvement existing for two or more years become important.

Grandfathering eases the transition when a district is no longer eligible. It gives districts the assurance that they will receive at least partial funding for a year ahead. Also it gives them an additional year to find local sources for funding of programs they wish to continue.

This technique has proven satisfactory as a means of allocating state compensatory education funds in Michigan. The Executive office, the Legislature and the State Board of Education are in basic agreement that use of achievement scores is the most appropriate way to determine eligibility of districts.⁸

The use of simulations provides a convenient means to explore the answers to questions that ask "what if". This paper has reviewed the way in which simulations were used to examine the consequences of various possibilities that could have been incorporated into Chapter 3 legislation. Using this information the necessary decisions were made, legislation was written and passed and the program was implemented.

While the results have not been used so far in practice, simulations have been run to consider the consequences of possible changes in other programs. For example a study was made of the changes that would result if Title I funds were to be allocated on the basis of achievement rather than the formula currently being used. Another study examined the effects of using achievement scores and per pupil funding for the state reading support program (Section 43).

EDUCATIONAL IMPORTANCE

What has been done in Michigan is of educational importance in several respects.

1. State-wide assessment results are being used to determine which school districts are most in need of additional funds for compensatory education. This is based on two assumptions. First that districts with large numbers of students having special needs should be provided extra money to meet the higher costs of programs to educate them. And second, that achievement scores are the most appropriate measure of educational need.
2. Policy-makers have made use of simulations when writing legislation to fund a state compensatory education program. Simulations can provide information about the consequences of possible specifications being considered for inclusion in legislation. All too frequently this information is not considered by the policy-makers in drafting legislation.

3. Michigan is now in its seventh year of funding a state-wide compensatory education program based on educational rather than socio-economic disadvantage. With the national debate over educational vs socio-economic need as the basis for funding federal programs, Michigan's experience with achievement-based funding becomes especially important at this time.

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Footnotes

1. Stanley A. Rumbaugh and David L. Donovan; "Achievement Based Funding: The Michigan Experience with Compensatory Education;" American Educational Finance Conference; Nashville, Tennessee, 1976, p 3.
2. Michigan Department of Education, A Description and Education of Section 3 Programs in Michigan 1971-72, Report Number 1, Lansing, Michigan: The Department, 1972, p 4-5.
3. Rumbaugh and Donovan, op. cit., p 7.
4. Michigan Department of Education, A Description and Evaluation of Chapter 3 State Compensatory Education Programs in Michigan 1974-75, Lansing, Michigan: The Department, 1976, p 1-2.
5. Michigan Department of Education, Analysis of Michigan Public School Revenues and Expenditures 1975-76, Bulletin 1011, Lansing, Michigan: The Department, 1976, p 5-12.
6. Michigan Department of Education, Local District and School Report: Explanatory Materials, Lansing, Michigan: The Department, 1972, p 25-26.
7. Michigan Department of Education, A Description and Evaluation of Chapter 3 State Compensatory Education Programs in Michigan 1975-76, Lansing, Michigan: The Department, 1977, p 39-42.
8. Rumbaugh and Donovan, op. cit., p. 13.